

## **TOPIC AREA: Tracking Data – Environmental Epidemiologic Methods**

**Title:** Developing Environmental Exposure Profiles for Linking Exposures with Health Effects

**Keywords:** exposure estimates; chronic disease

**Background:** Linking environmental exposures and health effects, particularly chronic health effects, is challenging due to spatial and temporal distances between diagnosis and exposure. One approach to address this issue is to develop a lifetime assessment of potential exposures based on risk estimates for multiple sources of exposure. A personal history identifies lifestyle factors such as hobbies and recreational activities, and locales where an individual has spent significant time. Information is integrated with environmental data to estimate the risk of the individual for exposure to various contaminants. Mapping of these data with individual histories provides the basis for an environmental exposure profile (EEP) to estimate potential exposure risks over a lifetime.

**Objective:** Use environmental databases to construct useful EEPs.

**Methods:** Sample EEPs were constructed for 3 subjects. Statewide air quality and pesticide datasets were reviewed for qualifying exposure estimates into high, medium, and low risk categories. Each subjects' temporal and spatial information was linked with the risk categories, and potential for exposure was determined.

**Results:** Construction of the individualized matrices was relatively straight forward. The product was a useful representation of each person that can be used in future analyses linking profiles with specific diseases.

**Conclusions:** The EEP is one approach for estimating personal exposures and linking exposures with health effects. It provides a tool for future research. One major advantage of the profile is the elimination of personally identifiable information allowing for wider dissemination of the information to a larger research community.

**Evaluation:** Limitations of the EEP include: the need for followback interviews, sometimes unreliable self-reported historical data, and the crude estimation of exposure based on potential for exposure.

### Corresponding Author Information

Marni Y.V. Bekkedal, Ph.D.

Research Scientist, Epidemiology

Wisconsin Bureau of Environmental & Occupational Health

1 West Wilson St., Room 150

Madison, WI 53702

[bekkemy@dhfs.state.wi.us](mailto:bekkemy@dhfs.state.wi.us)

Office Phone: (608) 267-3811

Fax: (608) 267-4853

### Additional Authors' Information

Lawrence Hanrahan [hanralp@dhfs.state.wi.us](mailto:hanralp@dhfs.state.wi.us)

Mark Werner [wernema@dhfs.state.wi.us](mailto:wernema@dhfs.state.wi.us)

Henry Anderson [anderha@dhfs.state.wi.us](mailto:anderha@dhfs.state.wi.us)